

CLAIMS

1 1. A voltage regulator comprising:
2 an input terminal at which an input voltage is applied;
3 an output terminal at which an output voltage is provided to a load, wherein the
4 load defines a load current;
5 a gate modulated diode connected between the input terminal and the output
6 terminal, the gate modulated diode having a forward voltage drop that is controllable by
7 a voltage signal applied to a gate of the gate modulated diode;
8 a first operational amplifier capable of operating with a low supply voltage, the
9 first operational amplifier operable to apply the voltage signal at the gate of the gate
10 modulated diode to control the forward voltage drop;
11 wherein the output voltage is regulated to a predetermined low voltage when
12 the load current is within an operational range for the voltage regulator.

1 2. The voltage regulator of claim 1 wherein the supply voltage has a value
2 of not more than 1.2V.

1 3. The voltage regulator of claim 1 wherein the gate modulated diode
2 comprises a MOSFET.

1 4. The voltage regulator of claim 1 wherein the supply voltage is the same
2 as the input voltage.

1 5. The voltage regulator of claim 1 wherein the output voltage has a value
2 of not more than 1.0V.

1 6. The voltage regulator of claim 1 comprising a second operational
2 amplifier operable to provide a reference voltage to the first operational amplifier.

1 7. The voltage regulator of claim 1 comprising a resistor coupled between

2 the input terminal and an output node of the first operational amplifier, the resistor
3 operable to pull-up the output node of the first operational amplifier.

1 8. The voltage regulator of claim 1 comprising a capacitor connected to
2 the output terminal, the capacitor operable to stabilize the output voltage.

1 9. A voltage regulator comprising:
2 an input terminal to which a low source voltage can be applied;
3 an output terminal at which a low output voltage is provided;
4 a transistor connected between the input terminal and the output terminal, the
5 transistor having a forward voltage drop which can be changed in response to a voltage
6 applied to a gate of the transistor; and
7 means connected to the gate of the transistor for controlling the forward voltage
8 drop of the transistor so that the low voltage output is maintained at a substantially
9 constant value, the means for controlling capable of operating with the low source
10 voltage.

1 10. The voltage regulator of claim 9 wherein the low source voltage has a
2 value of not more than 1.2V.

1 11. The voltage regulator of claim 9 wherein the transistor implements a
2 gate modulated diode.

1 12. The voltage regulator of claim 9 wherein the transistor comprises a
2 MOSFET.

1 13. The voltage regulator of claim 9 wherein the output voltage has a value
2 of not more than 1.0V.

1 14. The voltage regulator of claim 9 wherein the means for controlling

2 comprises an operational amplifier.

1 15. The voltage regulator of claim 9 comprising a capacitor connected to
2 the output terminal, the capacitor operable to stabilize the output voltage.